



Department of Energy  
Carlsbad Field Office  
P. O. Box 3090  
Carlsbad, New Mexico 88221

July 12, 2004



Mr. Steve Zappe, Project Leader  
Hazardous Waste Bureau  
New Mexico Environment Department  
2905 Rodeo Park Drive East, Bldg. 1  
Santa Fe, New Mexico 87505-6303

Subject: Transmittal of Revised Certification Audit Report and B6 Checklist for the  
Los Alamos National Laboratory Audit (A-03-27)

Dear Mr. Zappe:

This letter transmits the revised final audit report and checklists for the Carlsbad Field Office (CBFO) Audit A-03-27 of the Los Alamos National Laboratory (LANL). The revised Audit Report and Checklists address the issues identified in a letter from the New Mexico Environment Department (NMED) dated July 6, 2004. Also enclosed with this letter are the responses to the comments contained in the attachment to the letter.

Please contact the CBFO Quality Assurance Manager, Ava L. Holland, at (505) 234-7423 should you have any questions concerning these revised final audit report checklists.

Sincerely,

R. Paul Detwiler  
Acting Manager

Enclosure

cc: w/o enclosure	
A. Holland, CBFO	*ED
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WIPP Operating Record, MS 486-06	
CBFO QA File	
CBFO M&RC	



**NMED COMMENTS AND THE CBFO RESPONSES TO THE COMMENTS ON THE  
LOS ALAMOS NATIONAL LABORATORY (LANL)  
FINAL AUDIT REPORT A-03-27**

The following contains the CBFO responses to each of the NMED comments on the Los Alamos National Laboratory (LANL) Final Audit Report A-03-27.

1. In the Audit Report, Steve Calvert was not listed in Section 3.0 as attending the audit. NMED notes that Mr. Calvert was indeed present at the audit.

*Response:*

*Added Steve Calvert as CTAC QA Audit and Assessment Manager on the Final Audit Report.*

2. From the B6 Checklist, pertaining to question 5, the reference QP-00-21, Sections 4.2.9, 4.2.16, 6.2.4, 6.4, and 6.5, there is no Section 4.2.16.

*Response:*

*Section 4.2.16 inadvertently inserted, Deleted reference to Section 4.2.16.*

3. From the B6 Checklist, pertaining to question 22, the reference QP-00-024, Attachment 4 (I16) is a typographical error and should be QP-00-024. Attachment 4 (16).

*Response:*

*The identification of QP-00-024, Attachment 4 (I16) was revised to reflect the correct section number, QP-00-024, Attachment 4 (16).*

4. From the B6 Checklist, pertaining to question 26, two of the references are DTP-00-01 and OSR-OP-120. Due to the fact that the other two references were listed as 'DTP-1.2-008, Entire Procedure and DTP-00-077, Entire', the other procedures should also have "Entire".

*Response:*

*Added "Entire" to the referenced procedures, DTP-00-01 and OSR-OP-120.*

5. From the B6 Checklist, pertaining to questions 50, 51, and 52, the reference is given as QP-00-34. Due to the fact that other references were listed as 'DTP-1.2-008, Entire Procedure and DTP-00-077, Entire', this reference should also follow suit and be listed as QP-00-34, "Entire".

*Response:*

*Added "Entire" to the referenced procedure, QP-00-034.*

6. From the B6 Checklist, pertaining to question 64, the references were given as QP-00-003 and QP-00-035. Due to the fact that several other references were listed with the phrase "Entire", these references should also follow suit.

*Response:*

*Added "Entire" to the referenced procedures, QP-00-003 and QP-00-035.*

7. From the B6 Checklist, pertaining to question 65, a reference is listed as QP-11.1-043. There was no such reference in the audit package. This may be a typographical error.

*Response:*

*Corrected the referenced procedure to TWCP-QP-1.1-043.*

8. From the B6 Checklist, pertaining to question 65, a reference was given as TWCP-DTP-1.2-075. Due to the fact that several other references were listed with the phrase "Entire", this reference should also follow suit.

*Response:*

*Added "Entire" to both referenced procedures, TWCP-QP-1.1-043 and TWCP-DTP-1.2-075.*

9. From the B6 Checklist, pertaining to questions 222a and 222b, the referenced procedure CCP-TP-032, Section 4.1.17 does not exist.

*Response:*

*Questions 222a and 222b reference procedure DTP-00-072. Could not find reference to CCP-TP-032, Section 4.1.17.*

10. From the B6 Checklist, pertaining to question 278, the referenced procedures DTP-00-007, Section 7.3.22 and DTP-1.2-008, Section 6.6.12 do not seem to answer the question.

*Response:*

*Changed reference procedure DTP-00-077, S.7.3.22 to DTP-00-077, S.7.3.23, and added reference to S.7.6.1. The language "every tenth waste container" does not appear in the permit. Added "There is one review for at least every ten waste containers" to the comments section.*

U.S. DEPARTMENT OF ENERGY  
CARLSBAD FIELD OFFICE

FINAL AUDIT REPORT

OF THE

LOS ALAMOS NATIONAL LABORATORY  
LOS ALAMOS, NEW MEXICO

RECERTIFICATION OF  
WASTE CHARACTERIZATION ACTIVITIES

AUDIT NUMBER A-03-27  
September 22 – 26, 2003



REVISED

Prepared by: Thomas Putnam  
Thomas Putnam, CTAC  
Audit Team Leader

Date: 7-8-04

Approved by: Ava L. Holland FOR  
Ava L. Holland, CBFO  
QA Manager

Date: 7-9-04

## **1.0 EXECUTIVE SUMMARY**

Carlsbad Field Office (CBFO) Audit A-03-27 was conducted to evaluate the adequacy, implementation, and effectiveness of the Los Alamos National Laboratory (LANL) Transuranic Waste Characterization Program (TWCP), including Quality Assurance (QA), and Waste Isolation Pilot Plant (WIPP) Hazardous Waste Facility Permit (HWFP) activities. Transportation activities were not part of the recertification audit. Recertification of the transportation activities will be performed by CBFO at a later date.

The audit was conducted at LANL in Los Alamos, New Mexico, September 22 – 26, 2003. The audit team concluded that overall, the LANL technical and QA procedures continue to be adequate relative to the flow-down of requirements from the CBFO Quality Assurance Program Document (QAPD), and the HWFP.

The audit team identified nine isolated deficiencies requiring only remedial corrective actions that were corrected during the audit (CDA). Four Observations were identified and eight Recommendations were offered for management consideration. One exemplary practice was identified in the area of headspace gas sampling and analysis.

## **2.0 SCOPE**

The scope of the audit was to evaluate the continued adequacy, implementation, and effectiveness of the technical activities and associated QA Program activities related to LANL transuranic (TRU) waste characterization and certification programs for debris (S5000) wastes. The audit team also evaluated compliance with the HWFP. Audit scope included the results of previous audits, changes in programs and operations, new programs and activities implemented in the last year, and changes in key personnel.

The following QA elements were evaluated in accordance with the CBFO QAPD and the HWFP:

- Organization/QA Program Implementation
- Personnel Qualification and Training
- QA Grading
- Documents and Records
- Procurement
- Control of Measuring and Test Equipment
- Control of Nonconforming Items
- Corrective Action
- Audits/Assessments
- Software Requirements

The following characterization technical elements were evaluated during the audit:

- Headspace Gas (HSG) Sampling and Analysis
- Real-Time Radiography (RTR)
- Visual Examination (VE)

- Visual Examination Technique (VET)
- Generation-Level Data Verification and Validation (V&V)
- Project-Level Data V&V
- Acceptable Knowledge (AK)
- Waste Stream Profile Forms
- WIPP Waste Information System (WWIS)

The evaluation of LANL TWCP documents was based on the current revisions of the following documents:

- *CBFO Quality Assurance Program Document, CAO-94-1012*
- *WIPP Hazardous Waste Facility Permit*
- *Contact-Handled Waste Acceptance Criteria for the Waste Isolation Pilot Plant, DOE/WIPP-02-3122*

### 3.0 AUDIT TEAM AND OBSERVERS

#### AUDITORS/TECHNICAL SPECIALISTS

Lea Chism	CBFO Management Representative
Thomas Putnam	Audit Team Leader, CBFO Technical Assistance Contractor (CTAC)
<u>Steve Calvert</u>	<u>QA Audit and Assessment Manager, CTAC</u>
Prissy Dugger	QA Auditor, CTAC
Norman Frank	QA Auditor, CTAC
Porf Martinez	QA Auditor, CTAC
Jim Schuetz	QA Auditor, CTAC
Jimmy Wilburn	QA Auditor, CTAC
Chet Wright	QA Auditor, CTAC
Sharyl McCauley	Auditor in Training, Carlsbad Environmental Monitoring Research Center (CEMRC)
Dick Blauvelt	Technical Specialist, CTAC
Dave Price	Technical Specialist, CTAC
Wayne Ledford	Technical Specialist, CTAC
B.J. Verret	Technical Specialist, CTAC
Patrick Kelly	Technical Specialist, CTAC

#### INSPECTORS/OBSERVERS

Steve Holmes	New Mexico Environment Department (NMED)
Kevin Krause	NMED
June Dreith	TechLaw (contractor to NMED)

## **4.0 AUDIT PARTICIPANTS**

LANL personnel participating in this audit process are identified in Attachment 1. A pre-audit meeting was held at TA21, Building 210, on September 22, 2003. Daily meetings were held with LANL management and staff to discuss issues and potential deficiencies. The audit was concluded with a post-audit meeting held at TA21, Building 210, on September 26, 2003.

## **5.0 SUMMARY OF AUDIT RESULTS**

### **5.1 Program Adequacy, Implementation, and Effectiveness**

The audit team concluded that the LANL technical and QA processes/procedures were adequate relative to the flow-down of requirements from the CBFO QAPD and the HWFP.

The audit team concluded that the defined LANL QA program elements reviewed were adequate and satisfactorily implemented in accordance with the LANL Quality Assurance Management Plan (QAMP), the LANL Quality Assurance Project Plan (QAPjP), and LANL implementing procedures for the areas evaluated. The LANL QA program in those areas was also determined to be effective. For details regarding the issuance of CARs, CDAs, Observations, Recommendations, and exemplary practices, see Section 6.

A summary table of audit results for each of the QA program elements and the technical processes is provided in Attachment 2. Audit activities, including the specific objective evidence reviewed, are described below for the technical areas. A list of procedures evaluated during the audit is included in Attachment 4.

### **5.2 Quality Assurance Activities**

Details of the objective evidence reviewed in the QA areas are contained in the audit records. The audit team identified two isolated issues that were corrected during the audit (see Sections 6.2.6 and 6.2.7), one Observation (see Section 6.3.1), and four Recommendations (see Sections 6.4.4, 6.4.5, 6.4.6 and 6.4.8). The QA activities evaluated were determined to be adequate, satisfactorily implemented, and effective.

### **5.3 Technical Activities**

Evaluations of applicable LANL technical activities are summarized below.

#### **5.3.1 Table B6-1 WAP Checklist**

The B6-1 WAP checklist addresses program requirements from an overall management perspective. It documents the verification that the waste characterization strategy, as defined in the WAP, is implemented by using controlled procedures. This audit was performed to assess LANL's ability to characterize S5000 contact-handled, retrievably

stored, and newly generated heterogeneous debris waste. Objective evidence to evaluate the implementation of the associated characterization activities was selected and reviewed. Batch data reports, sampling records, and training documentation for TWCP personnel were included in the evaluation. The audit included direct observation of actual waste characterization activities (HSG, VE, RTR, and WWIS data entry). Each characterization process involves:

- Collecting raw data
- Collecting quality assurance/quality control (QA/QC) information
- Reducing the data to a useable format, including a standard report
- Review of the report by the data generation facility and the site project office
- Comparing the data against program data quality objectives (DQOs)
- Reporting the final waste characterization information to WIPP

The audit team reviewed the flow of data, from the point of generation to inclusion in the waste stream profile form (WSPF), for each characterization technique to ensure that all applicable requirements were captured in the site operating procedures. Procedure QP-00-024 is the controlling document for the preparation of the WSPF for LANL. Two WSPFs (LA-TA-55-30 [TWCP 11313] and LA-05-00-01 [TWCP 13538]) were reviewed, both were determined to be in proper format. Both WSPFs have been approved since the last certification audit. The Characterization Information Summary (CIS) report was prepared and was deemed acceptable. More detail concerning specific procedures audited and the objective evidence reviewed is provided in the following sections.

Procedure QP-00-024 is the controlling document for project-level data V&V for LANL. During the audit, 25 batch data reports (four NDA-RTR, seven VE, 11 NDA, and three HSG) that had passed project-level review were examined and deemed acceptable. The batch reports reviewed and the processes observed were found to be acceptable.

WSPFs and the related summarized characterization information were reviewed to establish the objective evidence for reporting waste characterization information to WIPP. The forms were completed using information from current characterization processes.

The auditors observed that the AK Summary Document AK-00-019 required additional documentation of the process used to consolidate waste streams, in particular those from buildings other than TA-55 (such as TA-21 and TA-48) into a TA-55 waste stream.

The audit team identified one isolated condition adverse to quality that was corrected during the audit (see Section 6.2.3), one Observation (see Section 6.3.3), and two Recommendations in this area (see Sections 6.4.1 and 6.4.2). Overall, the LANL TRU Program was judged to be adequate in meeting the WAP requirements, satisfactory in

the implementation of those requirements, and effective in the results of implementation.

### **5.3.2 Table B6-2 Solids and Soils/Gravel Sampling Checklist**

LANL is currently not certified to characterize homogeneous solid or soil/gravel waste streams. This area was not audited during Audit A-03-27

### **5.3.6 Table B6-3 Acceptable Knowledge Checklist**

This audit was performed to assess LANL's ability to characterize S5000 contact-handled, retrievably stored, and newly generated heterogeneous debris waste. Items on the AK checklist are intended to ensure that LANL has an AK process in place to:

- Train personnel in data collection requirements
- Assemble collected data into a coherent narrative detailing waste generation and constituents
- Segregate the waste into like waste streams
- Provide Resource Conservation and Recovery Act (RCRA) characterization for those waste streams
- Confirm those characterizations using sampling and analysis
- Provide an auditable set of records to support the characterization

The following procedures relating to the AK process were evaluated:

- DTP-00-013, *Calculation for Determining the Number of Containers to Sample in a Waste Stream*
- DTP-00-053, *Assignment of Waste Matrix Codes*
- DTP-00-064, *Waste Characterization Data Reconciliation with AK and Acceptable Knowledge Accuracy Reporting*
- DTP-00-001, *Waste Visual Examination and Packaging*
- QP-00-021, *Acceptable Knowledge Documentation*
- TWCP-DTP-1.2-006, *Calculation of UCL90 Values*
- TWCP-DTP-1.2-014, *Random Selection of Containers and Sampling Locations for TRU Waste Characterization Activities*

Since the previous recertification audit, LANL has made a concerted effort to consolidate what was a relatively large number of waste streams into a more manageable number. They are now proposing to have about 25 distinct waste streams versus well over 100 listed a year ago. The currently certified streams are mixed and non-mixed combustible waste and mixed and non-mixed heterogeneous debris. During

the audit, the auditors received Revision 1 of a recently issued "Master" AK Summary Report, AK-00-019, *Acceptable Knowledge Information Summary for LANL TRU Waste Streams*. This document will eventually contain all WAP-required programmatic and waste stream-specific information for all LANL waste streams with the exception of the Operational Safety Requirements (OSR) program and offsite generators. The auditors examined the AK record compiled in this document and also requested and reviewed several AK source documents that support the characterization of the waste stream in the summary. The team also reviewed the AK summary document for the OSR program.

The AK process includes provisions to identify information that conflicts with what is expected in a waste stream (confirmation processes) and a method by which these conflicts can be resolved. The discrepancy resolution procedure is DTP-00-064, *Waste Characterization Data Reconciliation with AK and Acceptable Knowledge Accuracy Reporting*. LANL WSPFs and related information were reviewed to establish the objective evidence for reporting characterization information to WIPP. The audit team also evaluated Procedure QP-00-024, *Reporting Summarized Characterization Data and Waste Stream Summaries to CBFO*.

AK documentation and the auditable AK record were reviewed in detail for S5000 contact-handled, retrievably stored, and newly generated debris waste streams. The AK record was reviewed to demonstrate that the required information was present and correctly interpreted. The batch data reports were used to demonstrate confirmation of AK, reconcile DQOs, prepare draft WSPFs, and transmit data to WIPP using the WWIS.

The procedures cited above, which are used by the site to assemble, evaluate, document, and reconcile sampling and analysis results, were reviewed for adequacy and their implementation was assessed during the audit. The AK requirements include procedure content and specific requirements for retrievably stored waste and ensure that the AK summary includes all mandatory information required by the WAP.

Reports and records used to document the basis of LANL AK were evaluated and are included as Attachment 3. The audit team determined that the reports were satisfactory and the records properly maintained as QA records.

LANL's use of sampling, analysis, and testing data to confirm the waste designations, resolve discrepancies, and document changes was found to be satisfactory. Waste characterization designations were confirmed by reviewing the batch data reports documenting the characterization activities. If the characterization results do not support the AK waste stream description, a nonconformance report (NCR) is prepared.

The audit team identified three isolated conditions adverse to quality that were corrected during the audit (see Sections 6.2.1, 6.2.2 and 6.2.8), and two issues were documented as Observations (see Sections 6.3.2 and 6.3.4). Overall, the LANL AK Program was judged to be adequate in meeting the WAP requirements, satisfactory in

the implementation of those requirements, and effective in the results of implementation.

#### **5.3.4 Table B6-4 Headspace Gas Checklist**

Direct canister headspace gas (HSG) sampling and associated activities were reviewed during the audit. The audit team also reviewed activities associated with HSG sampling operations performed by LANL personnel for samples being shipped to Idaho National Engineering and Environmental Laboratory (INEEL) for analysis. These processes are documented in the following procedures:

- DTP-00-038, *HGAS Filter Removal & Replacement*
- DTP-00-069, *Installation of the NucFil HGAS Sample Port*
- DTP-00-070, *Canister Cleaning Using Entech 3100 Canister Cleaning System*
- DTP-00-071, *Manual Headspace Gas Sampling of LANL TRU Waste Containers*
- DTP-00-072, *LANL TRU Waste Container HGAS Analysis (Entech/Agilent)*
- DTP-00-074, *Manual Headspace Sampling of LANL TRU Waste Containers for Analysis by INEEL*
- TWCP-DTP-1.2-075, *Headspace Gas Sampling Batch Data Report Preparation (INEEL)*
- DTP-00-078, *Headspace GAS Sampling and Analysis Batch Data Reports Preparation (Entech/Agilent)*
- DTP-00-079, *Entech Canister Gauge Leak Test*
- QP-00-012, *Laboratory Notebooks and Logbooks*
- TWCP-QP-1.1-040, *Tracking and Reporting of TICs*
- TWCP-QP-1.1-043, *TWCP-Receipt from INEEL of LANL Headspace Gas Analysis Data Reports*

HSG sampling and analysis operations were included in the audit. Activities reviewed were drum filter replacement, sample port installation, direct canister sampling, gas chromatography/mass spectrometry (GC/MS) analysis, canister cleaning, canister gauge leak test, and generation and review of batch data reports. The auditors observed sample port installation, HSG sampling and analysis operations, adding tentatively identified compounds (TICs) to the target analyte list, and samples taken from canisters for analysis. Additionally, documents and records were inspected (Attachment 3 includes copies of objective evidence), various personnel interviewed, and batch data reports reviewed. Education, experience, and training of analytical personnel were verified to be compliant with the WIPP WAP requirements.

The audit team concluded that all areas inspected were well organized, and the samplers, technicians, analysts and supervisors are knowledgeable with regard to their

individual duties. The operational systems implemented by the HSG team were technically sound, suitable for use, and well documented. The audit team identified one isolated issue regarding HSG personnel making entries into logbooks that was corrected during the audit (see Section 6.2.4), two Recommendations (see Sections 6.4.3 and 6.4.7), and an Exemplary Practice regarding an Excel spreadsheet (see Section 6.5).

### **5.3.5 B6-5 Radiography Checklist**

The B6-5 radiography checklist was completed by assessing the implementation of the operating procedures TWCP-DTP-1.2-076, *Prohibited Item Dispositioning*; DTP-00-077, *Collection and Data Generation Level Validation of NDE Results Using the Mobile RTR System II*; TWCP-DTP-1.2-008, *Performing NDT Using the Mobile RTR System*; DTP-00-053, *Assignment of Waste Matrix Codes*; and QP-00-035, *Written Practice for Qualification of 2010 Project Nondestructive Examination Personnel*. As part of the RTR review, five batch data reports were reviewed, along with the associated audio/videotapes. Operations were observed for the examination of two containers on September 24, 2003.

LANL has placed a new rental RTR unit on-line since the previous recertification audit. This unit is a VJ Technologies RTR unit formerly used on the 3100M<sup>3</sup> project at the INEEL. The unit is functionally equivalent to LANL's currently certified RTR unit, with the exception of a mechanical feed system that can hold three drums (the certified unit requires the drums to be loaded one at a time). The data management software being used with the new unit is a version of the TRIPS RTR module used by the 3100M<sup>3</sup> project.

Operator training files were reviewed for compliance to QAPjP training requirements. One concern was identified during the audit. This issue was determined to be an isolated condition adverse to quality that was corrected during the audit (see Section 6.2.9). The procedures were found to be adequate, and the program was satisfactorily implemented and effective.

### **5.3.6 B6-6 Visual Examination (VE) Checklist**

The audit team evaluated the VE procedures and processes being implemented at the LANL site. VE operations were observed for drum 52381 on September 23, 2003. VE-related procedures reviewed during the audit included DTP-00-053, *Assignment of Waste Matrix Codes*, TWCP-DTP-1.2-002, *Video System Operations for TWCP, Performed at the WCRR Facility*, QP-00-039, *Conversion of Waste Volumes to Weights*, TWCP-DTP-1.2-001, *Waste Visual Examination and Packaging*, and TWCP-DTP-1.2-015, *Calculation for Determining the Number of Containers for VE*. The VE program for confirmation of RTR was also reviewed during the audit.

Three batch data reports were examined along with the associated audio/videotapes documenting the examinations. The calculation of the annual S5000 miscertification rate and random selection of containers for VE as a QC check on RTR were also

reviewed during the audit. Training files were reviewed to determine compliance with QAPjP training requirements. In the area of training, one deficiency was identified regarding the absence of a qualification card in a VE Expert's file. The issue was determined to be isolated and was corrected during the audit (see Section 6.2.5). The procedures were found to be adequate, and the program was satisfactorily implemented and effective.

## **5.4 General**

### Results of Previous Audits

The Observations and CARs resulting from LANL Recertification Audit A-02-30 were examined and it was determined that the conditions identified in the audits had been corrected.

### Changes in Programs or Operations

The HWFP portions of the audit were performed in accordance with the latest B6 checklists, which incorporate all the Class 1, Class 2, and Class 3 modifications to the HWFP.

### New Programs or Activities Being Implemented

Since the last recertification audit, LANL has taken over operation of the HGAS Facility and is no longer sending the samples to INEEL for analysis. LANL personnel are performing the actual operations under LANL direction, using LANL procedures.

### Changes in Key Personnel

LANL has changed the SPM and SPQAO who are key personnel since the last recertification audit. LANL has certified additional personnel as alternates for the key positions.

## **6.0 CORRECTIVE ACTION REPORTS, CORRECTED DURING THE AUDIT, OBSERVATIONS, RECOMMENDATIONS, AND EXEMPLARY PRACTICES**

During the audit, the audit team may identify conditions adverse to quality (CAQ) and document such condition(s) on corrective action reports (CARs).

Condition Adverse to Quality (CAQ) – An all-inclusive term used in reference to any of the following: failures, malfunctions, deficiencies, defective items, nonconformances, and technical inadequacies.

Significant Condition Adverse to Quality – A condition which, if uncorrected, could have a serious effect on safety, operability, waste confinement, TRU waste site certification, compliance demonstration, or the effective implementation of the QA program.

## **6.1 Corrective Action Reports (CAR)**

No CARs associated with the WIPP Hazardous Waste Facility Permit resulted from the audit.

## **6.2 Corrected During the Audit**

During the audit, the audit team may identify conditions adverse to quality (CAQ). The audit team members and the audit team leader (ATL) evaluate the CAQs to determine if they require a CAR. Once a determination is made that a CAQ does not require a CAR, the audit team members, in conjunction with the ATL, determine if the CAQ is an isolated case requiring only remedial action and, therefore, can be corrected during the audit (CDA). Upon determination that the CAQ is isolated, the audit team members, in conjunction with the ATL, evaluate/verify any objective evidence/actions submitted or taken by the audited organization and determine if the condition was corrected in an acceptable manner. Once it has been determined that the CAQ has been acceptably corrected, the ATL categorizes the condition as CDA.

Corrected During the Audit (CDA) – Isolated deficiencies that do not require a root cause determination or actions to preclude recurrence, and correction of the deficiency can be verified prior to the end of the audit. (Examples: one or two minor changes required to correct a procedure (isolated); one or two forms not signed or not dated (isolated); one or two individuals that have not completed a reading assignment.)

Nine isolated deficiencies, requiring remedial action only, were identified during the audit and reported as CDAs. They were corrected and verified before the completion of the audit.

### **6.2.1 CDA 1**

The LANL TRU Waste Stream Inventory Report AK-00-019, R.0 Appendix B, does not include a date. The waste matrix parameters in Appendix A of the AKIS needed a crosswalk table.

LANL issued interim change (IC) #1 for AK-00-019, R.1, effective 9/23/03. The change consisted of requested additions to the acronyms and addition of the sentence: "Inventory report is based on information from the TRU Waste Management database as of August 15, 2003."

### **6.2.2 CDA 2**

The process for reconciliation of AK requires reconciliation of AK radionuclide data with NDA. Some showed the two most prevalent Pu radionuclides and some showed the most prevalent radionuclides. The latter is correct.

DTP-00-064, R.0, Section 6.4, regarding AK accuracy preparation, contains several steps regarding verification by an independent person. The qualifications of that individual must be documented.

IC #2 was issued to DTP-00-064, R.0, to remove the term "Pu" and define the "independent person" as the "independent Site Project Manager or designee." The Site Project Manager and/or designees have qualifications and training documented in LANL training records.

### **6.2.3 CDA 3**

On the Site Project Manager (SPM) Container List (LA 03-HGAS/IA-006, page 12), the record is blurred and faint. In the past when this has happened, some SPMs have copied the cover sheet to correct this problem and others have retyped the information on another sheet.

Record personnel regenerated a clean copy of the batch data report cover sheet for LA03-HGAS/IA-006 and had the SPM initial and date it 9/23/03.

### **6.2.4 CDA 4**

Names of HSG sampling and analysis employees responsible for maintaining or making entries in the logbooks are not listed on the first page of the HSG Sampling and Analysis logbooks. The HSG logbooks listed only the HSG team leader.

The auditor verified that all affected logbooks were updated to include names of the HSG employees that can make logbook entries on the first page of each logbook.

### **6.2.5 CDA 5**

The training file for one LANL VE Expert (VEE) was missing the qualification card. The required training and qualification was documented in the VEE training file; however it was not documented on the required qualification card.

A qualification card was prepared for the VEE in question which showed the required reading files, on-the-job training (OJT), and all other qualifications.

### **6.2.6 CDA 6**

The inventory list titled "Software Management Code-Code Information Summary" does not indicate correct date and hardware Identification for "SSLIC" application software.

Management generated an installation and checkout (I&C) application suite for SSLIC software showing the date and correct hardware identification. They then updated the software inventory to Revision 18, containing the correct I&C information.

### **6.2.7 CDA 7**

Three documents were identified in Procedure TWCP-QP-1.1-022, R.5/IC3 as records that were not listed in Section 8.0 "Records." These records are identified in the following sections: 6.1.1, "e-mail from operations leaders to SPQAO on expected receipt," 6.1.2.1, "e-mail from operations leader to SPQAO on sample receipt," and 6.1.2.5, "original delivery/chain of custody record."

IC #4 for TWCP-QP-1.1-022 was issued to change Section 8 to include these as records.

### **6.2.8 CDA 8**

DTP-00-064, R.0, includes information for preparing the Acceptable Knowledge (AK) Accuracy Report. The instructions for doing AK/NDA accuracy are not listed in the procedure. In addition, the format for the second page of Table 2 of the AK Accuracy Report, where calculations are tabulated, is not consistent with the intent of the LANL 2010 program.

IC # 2 for DTP-00-064, R.0, was issued which revised Table 2 to remove the column "No. of Drums with Material Type Ratio greater than 30%," and insert a new Section 6.4.4 in the procedure addressing the use of Table 2.

### **6.2.9 CDA 9**

RTR test drum #4, run on the July 2003 biannual scan, did not include a full container as required.

RTR management had the personnel in question re-run the biannual scan using test drum #1, which did include a full container and met all other requirements.

## **6.3 Observations**

Audit A-03-27 resulted in four Observations described in the following subsections.

### **6.3.1 Observation 1**

The interim change (IC) # 2 for TWCP-DTP-1.2-016, *Calibrating the Tomographic Gamma Scanning System*, had been issued after the form had been reviewed and approved. Interim changes are minor in nature and did not require a revision of the procedure. The changes made to the IC had not been initialed and dated. Discussion with the records manager found that he made the changes to correct typos, procedure numbers or other items of a minor nature. Records management reviewed all the ICs made during the past year to determine if any other ICs were changed. For those that had been changed, Records Management had the subject matter experts review each procedure and approve each for acceptability to ensure that no major changes to the procedures were made.

### **6.3.2 Observation 2**

TWCP-DTP-1.2-064, R.5/IC3 requires that waste material parameters for RTR and/or VE be entered into a spreadsheet with the average (AVG) value and standard (STD) deviation calculated. This is then entered into Attachment 2, Section 1b, as part of AK confirmation. The information for RTR has been processed and is on the spreadsheet. However, the VE information exists on other VE reports but at the time of the audit had not yet been recorded on the spreadsheet.

### **6.3.3 Observation 3**

Batch data report original records printed on some site printers contain extraneous information (introduced by the printer). All records that have been paginated by this printer should be reviewed to ensure that they are legible. It has been noted that a new printer is on order.

### **6.3.4 Observation 4**

AK-00-019, R.1, *The Acceptable Knowledge Information Summary for LANL Waste Streams*, dated 9/22/03, needs additional justification in Section 5 regarding the consolidation of process waste from facilities other than TA-55 (such as TA-3 and TA-48) into the TA-55 waste stream. In addition, LANL should document the chronology of activities regarding consolidation of waste streams since the August 2002 CBFO recertification audit.

## **6.4 Recommendations**

The following recommendations are provided for management consideration.

### **6.4.1 Recommendation 1**

Pages in batch data reports do not contain the identifying number of the particular report. If a page were pulled, there would be no way of knowing to which batch data report it belongs. There is no requirement to place the batch data report number on each page of the BDR.

Recommendation: All pages of a batch data report should include the specific batch data report number.

### **6.4.2 Recommendation 2**

Batch data reports exist in both hardcopy and (for INEEL data) electronically. If the hardcopy batch data report is rejected due to data-affecting attributes such as UCL90 calculations, the electronic file may not reflect that the report has been rejected. The hardcopy is the formal record and therefore meets the procedure requirement.

Recommendation: A process should be in place for flagging electronic files as "Rejected," rather than relying on the Site Project Manager to remember the rejection of a batch data report.

#### **6.4.3 Recommendation 3**

The filter vent was not sealed during installation of a sample port. The drum lid was depressed and released, possibly causing intrusion of outside air into the headspace of the drum. There is no requirement to seal the filter vent during the installation of the sample port, however it is a good practice.

Recommendation: The filter vent (and vent clip, if applicable) should be sealed during installation of the sample port.

#### **6.4.4 Recommendation 4**

Updates to the Institution Evaluation Supplier List (IESL) are made without notification to users. The IESL is on the LANL intranet; however, it had been moved and the auditee did not know the new location. The auditee was able to obtain an old listing (apparent from the revision date) of the IESL on the intranet. A call to the LANL organization controlling the IESL identified where the IESL was located on the intranet.

Recommendation: Notify users that an updated IESL has been issued, and remove the old list.

#### **6.3.4 Recommendation 5**

There is no mechanism in place to trigger review of CARs or NCRs by the Price-Anderson Amendment Act (PAAA) coordinator.

Recommendation: A PAAA review checkbox should be added to the NCR and CAR review forms.

#### **6.4.6 Recommendation 6**

LANL Procedure QP-00-008, R.0, *Corrective Action Reporting and Tracking*, does not address or provide instructions to be followed when a CAR is determined to be void and/or not used. The procedure requires that a logbook be established for the issuance and tracking of CARs by numbers. However LANL personnel can obtain a CAR number and then not use the CAR number. This allows a CAR number to remain open when in fact it should have been voided (showing that the numbers were never used to track a condition adverse to quality) The procedure does not require those obtaining CAR numbers to provide the keeper of the logbook with the current status.

Recommendation: Update the CAR Tracking Logbook with the current status of CARs, including justification if a CAR is voided or not used.

#### **6.4.7 Recommendation 7**

Tentatively identified compound (TIC) spectra and library comparison spectra are not included in batch data reports by LANL. There is no requirement to place these in the batch data reports.

Recommendation: Add the TIC spectra and library comparison spectra to batch data reports for confirmation by reviewers.

#### **6.4.8 Recommendation 8**

LANL supplier Antech Corporation is not approved to provide data reduction and processing of M-tomographic gamma scanner (TGS) spectral files (used between 5/15/03 and 9/15/03). Antech is a manufacturer of this type of equipment and software.

Recommendation: Antech Corporation should be approved for data reduction and processing/analyzing the TGS spectral files on the IESL. This will allow Antech to be used for these functions in the future.

#### **6.5 Exemplary Practice**

LANL uses an Excel spreadsheet package to record HSG information onto one page of the spreadsheet package (9c INEEL, Revision 0). After verification of the information, the HSG sampling information is transferred to seven or eight additional HSG sampling forms automatically, saving significant time and effort, eliminating transcription errors, and providing forms that are extremely legible. The audit team had been to several DOE TRU waste generation sites and had not previously seen spreadsheets developed to this detail.

#### **7.0 LIST OF ATTACHMENTS**

- Attachment 1: Personnel Contacted During the Audit
- Attachment 2: Personnel Contacted During the Audit by Area
- Attachment 3: Objective Evidence
- Attachment 4: List of Implementing Procedures

**PERSONNEL CONTACTED DURING AUDIT A-03-07**

NAME	ORG/TITLE	PREAUDIT MEETING	CONTACTED DURING AUDIT	POST AUDIT MEETING
Adams, Andy	LANL/RRES-CH	X		
Adams, Andrew	LANL/RRES-CH	X	X	X
Allen, Garry	LANL/ RRES-CE	X		
Atencio, Isaac	LANL/ RRES-CE	X	X	
Aurbins, Emilia	LANL/ RRES-CE	X		
Bailey, James	LANL/ RRES-CE		X	
Baker, Shannan	LANL/RRES-QAT		X	X
Baros, Ricky	LANL/ RRES-WDS		X	
Bayhurst, Greg	LANL/ RRES-CE	X		
Bentley, Jessica	LANL/RRES-QAT	X	X	
Burt, Jean	LANL/RRES-QA	X	X	
Coriz, Suzanne	LANL/ RRES-CH		X	
Del Signore, JC	LANL/RRES-QAT			X
Djordjevic, Sinisa	Weston	X	X	
Fernandez, Ruby Ann	LANL/RRES-CE	X	X	X
Garcia, Mary Ann	LANL/RRES-CE	X	X	
Gibson, Yvonne	LANL/RRES-CE	X	X	X
Granzow, Howard	LANL/RRES-DS		X	
Halley, Alan	LANL/RRES-OEIM		X	
Hardesty, Bill	LANL/ RRES-CH	X	X	
Hartwell, Ware	LANL/RRES-QAT	X	X	X
Huchton, Judith	LANL/RRES-CE	X		X
Huchton, Roger	LANL/NMT-7	X		X

NAME	ORG/TITLE	PREAUDIT MEETING	CONTACTED DURING AUDIT	POST AUDIT MEETING
Humphrey, Betty	LANL/ RRES-CE	X	X	
Jones, R.W.	LANL/ RRES-CH		X	
Keeney, Christina	LANL/ RRES-QAT	X	X	
Kosiewicz, Stan	LANL/ RRES-CE	X	X	X
Lamar, Bobby	LANL/ RRES-WDS	X		
Leonard, Pat	LANL/ RRES-QAT	X	X	X
Lin, Mavis	LANL/ RRES-CE	X	X	X
Lindahl, Peter	LANL/ RRES-QAT	X	X	X
Lopez, Jerry	LANL/RRES-WDS		X	
Lopez, Joshua	LANL/RRES-WDS		X	
Lowman, Branson	LANL/ RRES-CE		X	
Mancuso Carol	LANL/RRES-CE	X	X	
Marczak, Stanislaw	LANL/RRES-CH	X	X	
Martin, Beverly	LANL/RRES-WD	X		X
Martinez, Danette	LANL/ RRES-CE	X		X
Martinez, Monica	LANL/RRES-CE		X	
Martinez, Paul	LANL/RRES-WDS	X	X	
McAlpin, Jerry	LANL/ RRES-CH	X	X	
McCrawie, Nathan	LANL/RRES-CE	X	X	
Miller, Geoff	LANL/RRES-CE	X	X	
Miller, J.T.	LANL/ RRES-CH		X	
Miller, Scott	LANL/ RRES-CH	X		X
Mitchell, Rebecca	LANL/RRES-OEIM	X	X	X

NAME	ORG/TITLE	PREAUDIT MEETING	CONTACTED DURING AUDIT	POST AUDIT MEETING
Mullen, Richard	LANL/RRES-WDS		X	
Nunz, James	LASO-OFO			X
Owczarek, Robert	LANL/ RRES-CH		X	
Palomares, Jose	LANL/RRES-WDS		X	
Patton, Patricia	LANL/RRES-CE	X	X	
Pearson, Mike	LANL/ RRES-CH			X
Polley, Mark	LANL/RRES-WD	X		
Poths, Harold	LANL/ RRES-CH		X	
Powell, Mark	LANL/RRES-QAT	X	X	
Ramos, Pamela	LANL/RRES-QAT		X	
Ramsey, Beverly	LANL/RRES-DO	X		X
Rios, Robert	LANL/.RRES-WDS		X	
Romero, Bobby	LANL/.RRES-WDS		X	
Romero, Eric	LANL/ RRES-CH		X	
Romero, Myria	LANL/.RRES-WDS	X		X
Romero, Kenny	LANL/ RRES-CH			
Salazar, Willie	LANL/RRES-WDS		X	
Sanchez, Victoria	LANL/ RRES-CE	X		
Sandoval, Kathy	LANL/RRES-WDS		X	
Sandoval, Yolanda	LANL/RRES-CE		X	
Smith, Catherine	LANL/RRES-CE	X	X	X
Smith, Deborah	LANL/RRES-CE	X	X	
Steffes, Julie	LANL/RRES-QAT		X	

NAME	ORG/TITLE	PREAUDIT MEETING	CONTACTED DURING AUDIT	POST AUDIT MEETING
Sullivan, Jeri	LANL/RRES-CH		X	
Taylor, Marc	LANL/RRES-CE	X		X
Trabauda, Alice	LANL/RRES-QAT		X	
Trujillo, Barbara	LANL/RRES-CE		X	
Urbina, Emilia	LANL/RRES-CE		X	
Valdez, Joe	LANL/RRES-WDS		X	
Vandoral, Velina	LANL/RRES-CE	X		
Vecker, Barbara	LANL/RRES-OEIM	X	X	
Veilleux, John	LANL/RRES-CH	X	X	
Velasquez, Carmen	LANL/RRES-CE	X	X	X
Vigil, Jack	LANL/RRES-CH	X	X	
Voss, Susan	LANL/RRES-CH	X	X	
Wander, Sandy	LANL/RRES-CE	X	X	X

### Personnel Contacted During the Audit by Area

Nonconformances	Howard Granzow Christina Keeney Pat Leonard
Training	Mary Ann Garcia Ruby Ann Ferandez
Acceptable Knowledge	Betty Humphrey Mavis Lin Jerry McAlpin Geoff Miller Catherine Smith Deborah Smith
Headspace Gas	Suzanne Coriz Bill Hardesty Stan Kosiewicz Mavis Lin Jerry Lopez Joshua Lopez Branson Lowman Stanislaw Marczak J.T. Miller Eric Romero
Real-Time Radiography	Ruby Ann Ferandez Pat Leonard Carol Mancuso Paul Martinez Jose Palomares Kenny Romero Willie Salazar Jack Vigil
Visual Examination	Andrew Adams Ricky Baros R. W. Jones Jerry McAlpin Robert Rios Bobby Romero Kathy Sandoval Joe Valdez Susan Voss
WIPP Waste Information System (WWIS Data Entry)	Isaac Atencio Monica Martinez Yolanda Sandoval Barbara Trujillo

### Personnel Contacted During the Audit by Area

	Emilia Urbina
Waste Certification/Project Level & Data Generation Level Verification and Validation	Jessica Bentley Jean Burt Betty Humphrey Mavis Lin Geoff Miller Pamela Ramos Julie Steffes Alice Trabaldo

## PROCEDURES AUDITED DURING A-03-27

NUMBER	PROCEDURE NUMBER	TITLE
1.	DTP-00-001	Waste Examination and Packaging
2.	DTP-00-013	Calculation for Determining the Number of Containers to Sample in a Waste Stream
3.	DTP-00-038	HGAS Filter Reporting and Replacement
4.	DTP-00-053	Assignment of Waste Matrix Codes
5.	DTP-00-063	Preparing and Handling Waste Containers
6.	DTP-00-064	Waste Characterization Data Reconciliation with AK and Acceptable Knowledge Accuracy Reporting
7.	DTP-00-069	Installation of the NucFil HGAS Sample Port
8.	DTP-00-070	Canister Cleaning Using the Entech 3100 Canister Cleaning System
9.	DTP-00-071	Manual Headspace gas Sampling of LANL TRU Waste Containers
10.	DTP-00-072	LANL TRU Waste Container HGAS Analysis (Entech/Agilent)
11.	DTP-00-074	Manual Headspace Sampling of LANL TRU Waste Containers for Analysis by INEEL
12.	DTP-00-077	Collection and Data Generation Level Validation of NDE Results Using the Mobile RTR System II
13.	DTP-00-078	Headspace Gas Sampling and Analysis Batch Data Report Preparation (Entech/Agilent)
14.	OSR-OP-120	Visual Examination and Packaging of OSR Sealed Sources
15.	DTP-00-079	Entech Canister Gauge Leak Test
16.	QP-00-002	Document Control
17.	QP-00-003	Training
18.	QP-00-004	Records Management
19.	QO-00-005	Procurement
20.	QP-00-006	Software Management
21.	QP-00-007	Nonconformance Reporting and Tracking
22.	QP-00-008	Corrective Action Reporting and Tracking
23.	QP-00-009	Surveillances
24.	QP-00-010	Project Level Data Validation and Verification
25.	QP-00-012	Laboratory Notebooks and Logbooks
26.	QP-00-018	Measuring and Test Equipment
27.	QP-00-021	AK Documentation
28.	QP-00-024	Reporting Waste Stream Summaries to CAO
29.	QP-00-027	Audits
30.	QP-00-029	Grading Project 2010 Activities
31.	QP-00-030	Work Suspension
32.	QP-00-033	Management Assessments
33.	QP-00-034	WWIS Data Entry
34.	QP-00-035	Written Practice for Qualification and 2010 Project Nondestructive Examination Personnel
35.	QP-00-039	Conversion of Waste Volumes to Weights
36.	NMT7-AP-TA55-018	TA55 Transuranic Interface Document for Debris Waste
37.	TWCP-DTP-1.2-001	Waste Visual Examination and Packaging
38.	TWCP-DTP-1.2-002	Video System Operations for TWCP, Performed at the WCRR Facility
39.	TWCP-DTP-1.2-006	Calculation of UCL90 Values
40.	TWCP-DTP-	Performing NDT Using the Mobile RTR System

<b>PROCEDURES AUDITED DURING A-03-27</b>		
<b>NUMBER</b>	<b>PROCEDURE NUMBER</b>	<b>TITLE</b>
	1.2-008	
41.	TWCP-DTP- 1.2-014	Random Selection of Containers and Sampling Locations for TRU Waste Characterization Activities.
42.	TWCP-DTP- 1.2-015	Calculation for Determining the Number of Containers for VE
43.	TWCP-DTP- 1.2-075	Headspace Gas Sampling Batch Data Report Preparation (INEEL)
44.	TWCP-DTP- 1.2-076	Prohibited Item Dispositioning
45.	TWCP-QP- 1.1-001	Procedure Preparation, Review, Approval, Revision, and Interim Changes
46.	TWCP-QP- 1.1-022	PDP Blind Audit Sample Management, Analysis, and Reporting
47.	TWCP-QP- 1.1-026	Trend Analysis
48.	TWCP-QP- 1.1-040	Tracking and Reporting of TICs
49.	TWCP-QP- 1.1-043	TWCP Receipt from INEEL of LANL Headspace Gas Analysis Data Reports